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HOSPITAL BUILDING NOTE

DENTAL DEPARTMENT OF THE OUT-PATIENT DEPARTMENT

28

Department of Health and Social Security: London

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Hospital Building Note Number 28

Dental Department of the Out-patient Department

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Building Notes recommend the standards of accommodation and services for hospital departments which the Department of Health and Social Security considers it reasonable to provide. Each Building Note contains a Cost Note from which may be derived a Departmental Cost Allowance appropriate to the department. Hospital Boards are at liberty to depart from the design recommendations given in Building Notes provided that they are satisfied that the standards of accommodation and services they adopt are adequate. The Departmental Cost Allowance, however, is to be regarded as the maximum sum of money available for the department and it should not be exceeded. Hospital Boards are encourgaed to produce designs for the provision of appropriate accommodation and services at a cost less than the Departmental Cost Allowance.

An addendum to Appendix E of Hospital Building Note No. 2, *The Cost of Hospital Buildings*, which sets out cost recommendations for the Dental Department of the Out-patient Department is supplied with this Building Note.

I. Scope.

1. Since the publication of Hospital Building Note No. 12, Out-Patient Department, in 1961 the functions of the hospital dental service have been defined in more detail, and it is consequently necessary to revise what was said in that Building Note in respect of provision for the hospital dental department. This Building Note, therefore, supersedes the references to the dental suite in Building Note No. 12. The Scottish Home and Health Department's " Hospital Planning Note No. 6—Organisation and Design of Out-Patient Departments " (H.M.S.O.) also gives guidance on dental suites.

2. It is the policy of the Department to provide facilities in hospitals for:

(*a*) the specialist dental services given by:

(i) consultant dental surgeons

(ii) consultant orthodontists

(*b*) (i) comprehensive dental treatment of long-stay hospital in-patients

(ii) emergency dental treatment for short stay hospital in-patients

(iii) comprehensive dental treatment for patients whose medical condition necessitates their dental treatment in hospital.

II. General considerations.

3. The dental department should preferably form part of the out-patient department complex, its integration with which will result in economy in the use of staff and accommodation. Descriptions of staff changing rooms and common rooms are given in Hospital Building Note No. 18, Administrative Department, and the cost included in that cost note.

4. Patients will enter the dental department via the out-patient department entrance and will use the general out-patient department facilities. They can use either the main waiting area and a separate sub-waiting area in the dental department or alternatively go direct to the waiting area in the dental department depending on the degree of integration with the out-patient department. In-patients coming from the wards should be taken direct to the sub-waiting area in the dental department.

5. There are advantages, particularly for small dental departments, in having the dental appointments and records section situated in the main out-patient department records department if this is planned nearby. In the larger dental departments it may be of greater convenience to have the appointments and current records section in a separate area. Non-current records will be stored in the main hospital " non-current " records storage.

6. In general one hospital will serve as a consultant's main base from which he will afford cover for a group of hospitals in the neighbourhood. In districts where the population is scattered and communications extended it will be necessary to provide subsidiary dental centres at other hospitals. At the consultant's main base hospital he will require beds, operating theatre facilities, x-ray facilities and some general pathological laboratory support. Other requirements in the main base hospital will be a laboratory for the construction of splints and prostheses, a waiting room, office facilities, recovery room and store room facilities.

7. The accommodation in the various subsidiary centres, where these are necessary, will not be so extensive and can possibly be reduced to a dental surgery, a recovery room, office space, a laboratory/darkroom, waiting accommodation and a small store room. The consultant should have access to an adjacent consulting room within the out-patient department.

8. Wherever possible the consultant dental surgeon and the consultant orthodontist should work at the same main base as the sharing of laboratory facilities, waiting rooms and surgeries leads to a better utilisation of resources and the elimination of wasteful duplication.

9. A sufficient number of dental surgeries will be needed to accommodate the consultant(s) and supporting professional staff. The number of surgeries should be determined by reference to the number of dental sessions planned for the future and these should be so organised that the maximum use is made of each surgery. The amount of waiting space should be related to the number of surgeries and thus to the number of dental sessions.

10. The number of supporting staff needed will vary according to particular local circumstances and will include some or all of the following grades:

assistant dental surgeon, senior registrar, registrar, house officer, general dental practitioner under hospital contract, dental hygienist, dental auxiliary, dental surgery assistant, dental technician and nursing staff.

11. It follows that hospital dental departments will vary in size and character depending on their particular function. Figures 1–5 show specimen layouts for

different sized departments. Local circumstances will determine the choice of alternatives.

12. Safety precautions are an important factor in the use of equipment and should be taken into account in planning, designing and equipping.

13. The Factories Act, 1961, applies to dental laboratories in hospitals and it is essential to consult H.M. Factory Inspectorate at an early stage about the safety aspects of the design and equipment of new or extended dental laboratories.

III. List of rooms.

14. Below is a list of the rooms needed for the different types of department. The Table in Appendix I gives a schedule of accommodation with room sizes.

A. For a department serving as a consultant dental surgeon's main base

Basic accommodation

(i) Consultant's room
(ii) Consultant's surgery
(iii) Surgeries for assistant dental surgeon, or senior registrar or registrar, house officer and/or general dental practitioner and hygienist
(iv) Recovery room
(v) Secretary's office
(vi) Laboratory
(vii) Store rooms
(viii) Darkroom
(ix) Sub-waiting space
(x) Patients' sanitary facilities
(xi) Switchgear room
(xii) Circulation space (including areas for trolleys and wheelchairs)

Additional accommodation

(i) Office and reception
(ii) Waiting space for children
(iii) Sanitary facilities
(iv) Cleaners' room

B. For a department serving in addition as the main base for the orthodontic consultant

The following basic accommodation, additional to A above, will be required:

(i) Consultant's room
(ii) Consultant's surgery
(iii) Surgeries for assistant orthodontist or senior registrar or registrar
(iv) Additional laboratory space
(v) Orthodontic model and record store
(vi) Circulation space

C. For a department acting as a subsidiary dental centre

(i) Dental surgery
(ii) Recovery room
(iii) Laboratory/darkroom
(iv) Store (also model store when this centre is used as a subsidiary centre for orthodontics)
(v) Sub-waiting space
(vi) Switchgear room
(vii) Circulation space

Additional accommodation

(i) Office and reception

NOTE: Engineering plant space may be required for A, B or C (see description under " Communications ").

D. Communications

Plant rooms

A room to house the mechanical ventilation/air conditioning plant will be required and it will be necessary to provide accommodation for the medical gases, compressed air, and vacuum service installations if these services are not obtained from the central piped installations which supply the hospital. Where such local plant has to be provided, and the use of manifolds is indicated, the manifolds may not be housed in the same room as the ventilation/air conditioning plant or the compressor and vacuum pump. A separate manifold room should be provided in such cases and these may be used also as a temporary store for the spare full and empty oxygen and nitrous oxide bottles, provided care is taken to ensure that there is a clear separation between spare full and empty bottles. The compressor and vacuum pump may be housed in the ventilation/air conditioning room or in a separate room. The rooms should preferably be located within the periphery of the department and so sited that the plant does not interfere with the normal working of the department.

In a multi-storey building it may not be possible to locate the plant rooms within the department and provision should be made to site them on the roof or in the basement. The construction should be designed to keep the emission of noise and vibration to acceptable limits (see Hospital Design Note No. 4—Noise Control). Natural ventilation of the rooms should normally be satisfactory. Where it can be conveniently arranged (e.g. within a whole hospital complex) the plant room may be shared with other departments. The total area suggested is 150 sq. ft. (14·0 m^2) providing 80 sq. ft. (7·5 m^2) for the ventilating, etc., plant room and 70 sq. ft. (6·5 m^2) for the manifold room.

Functional unit

15. The functional unit selected for the basic accommodation in this Note and the related cost note is the dental session. (See Appendix II.)

Basic accommodation

Number of dental surgeries

16. The number of dental surgeries should be calculated on the same principle as " doctor sessions ", i.e. it

is assumed that the rooms are in full use for nine sessions a week out of a possible eleven. (See Appendix II.) The maximum use of the accommodation can be obtained by spreading the sessions over the week.

IV. Description of rooms.

17. The following is a description of rooms for A above. The rooms for B and C will be very similar apart from the differences in size indicated in the Table in Appendix I.

A. Basic accommodation

(i) Consultant's room

18. A room is required for the consultant dental surgeon or consultant orthodontist where patients may be interviewed and where he can write his reports and keep his reference books, etc. It is particularly important that children should be interviewed away from the surgery where the instruments, etc., might cause them alarm. The furniture and equipment in the consultant's room should be only that found in a normal office.

(ii) and (iii) Dental surgeries

19. All surgeries should have windows giving adequate natural light and blinds should be provided if the sun shines on these rooms at any time of day. A dimension of not less than 13 ft. (4·00 m.) across the window wall is suggested as this allows adequate space for professional equipment and for the surgeon and dental surgery assistant to move about freely. The area of a surgery other than that for a consultant at a main base should not exceed 170 sq. ft. (16·0 m^2).

20. Professional equipment required in each surgery will include a dental chair; a dental unit which may be fixed to the floor or may be mobile; an x-ray viewing box; an operating light which may be either mobile, fixed to the ceiling, to the wall or to the dental unit; and an aspirator. Orthodontists will require a special orthodontic table with an electric welding head.

21. Electric points, gas points and compressed air should be provided. If it is not possible to use the hospital supply of compressed air an air compressor will be required for the dental department. A lavatory basin and sink will be required, and water and water waste drainage must also be provided to the cuspidor on the dental unit, or water waste for an aspirator if a cuspidor on the unit is not part of the equipment supplied.

22. Sterile dressings and other sterile articles will normally be supplied from the central sterile supply department. Should the hospital's operational policies and the location of the dental department make it possible to use the central sterile supplies department or the theatre sterile supplies unit for sterilizing dental instruments this would be satisfactory. Instruments for conservation work may on the other hand be sterilized in a small portable electrically heated pressure steam sterilizer (draft B.S. 3970, part 4). In this case one such sterilizer should be provided in each surgery.

23. Dental instruments should be kept either in chair-side dental cabinets or in wall cupboards; instrument tables or trolleys may also be required. One mobile x-ray machine will be required for the use of the whole department and this can be stored either in one of the surgeries or off the circulation space.

Consultant dental surgeon and consultant orthodontic surgeons' surgeries

24. In the department specified as a consultant's main base, a surgery of not more than 200 sq. ft. (18·5 m^2) should be provided. This would accommodate any equipment required by the consultant to carry out specialist treatment, including that necessitated by the medical condition of the patient. It must be appreciated that some of these patients may be non-ambulant. The engineering services should be designed with these factors in mind. Doors should be wide enough to permit the passage of beds and high enough to accommodate Balkan beams. The surgeries are not necessarily for the exclusive use of the consultants.

(iv) Recovery room

25. Where the out-patient and dental departments are integrated, further economy in the use of staff can be achieved by the inclusion of a communal recovery area near both the out-patient department day ward and the dental surgery and having perhaps a separate room or rooms for dental patients. As, however, the dental recovery room must be adjacent to the dental surgeries this form of planning may not be possible.

26. The recovery room at the consultant's main base should be larger than that at the subsidiary centres. It should be divided by curtains and contain a recovery trolley and chairs so that more than one patient can use the room at the same time. The recovery room or area will be used by children including some with either physical or mental handicaps as well as handicapped adults. There may, therefore, be need to provide some equipment such as beds and chairs relating to these circumstances, for example, cots and low beds. In addition recovery rooms should have one or possibly two handbasins and arrangements for oxygen and medical vacuum points (see paragraph 55).

(v) Secretary's office

27. One or more secretaries will be required for whom an office should be provided.

(vi) Laboratory

28. This is needed for the fabrication of dental and orthodontic appliances and should be so situated that patients and staff are not disturbed by noise, vibration and fumes. The rooms should be fitted with sinks and

work tops, with fitted cupboards and a lavatory basin. One sink will require a constant boiling water supply and wax and plaster traps will be required to some sinks in this room. Reference has already been made in paragraph 13 about the need to consult H.M. Factory Inspectorate on the design and equipment.

29. Electrical socket outlets, town gas and compressed air should be provided. A fume cupboard is required. Extract ventilation will be required in the laboratory and hoods with extract fans should be provided over all ovens, welding plant, and apparatus for casting noble metals and chrome cobalt appliances. Ovens and casting apparatus generate considerable heat and special fire-proofing precautions will be required on some walls and benches. There should be a separate room for casting noble metals and chrome cobalt appliances.

(*vii*) *Store rooms*

30. A store room is needed in the laboratory and another elsewhere for surgery supplies and linen. In centres where orthodontists are employed special storage space is necessary for orthodontic boxes. At present there is no standard size for the boxes but generally they fall within the range of 9 in. × 3 in. × 3 in. (225 mm. × 75 mm. × 75 mm.) to 12 in. × 3 in. × 3 in. (300 mm. × 75 mm. × 75 mm.). The shelving should be 12 in. (300 mm.) from front edge to back.

(*viii*) *Darkroom*

31. A darkroom is required for the processing of dental and extra-oral films and this room must be provided with a " safe-light ", a light-proof louvred door and a light-proof extract fan. A sink and workbench will be required, and the hot water supply to the sink must have the temperature closely controlled by a thermostat. A single x-ray viewing screen is required. This room can often be incorporated with the laboratory in the subsidiary centres where a technician will not be employed (see paragraph 32). Manual processing equipment is all that is required at present.

Laboratory/darkroom (subsidiary centres only)

32. This should be designed generally as indicated in paragraph 31 but in addition should have laboratory facilities consisting of bench space on one side of the room for the casting of models in plaster from impressions and for the adjustment and polishing of dental appliances; on the other side of the room bench space should be provided for the processing equipment. Gas, compressed air and electric points must be provided. A lavatory basin is required in addition to the sink; the sink should have plaster and wax traps.

(*ix*) *Sub-waiting space*

33. The amount of sub-waiting space required will depend upon the number of people attending the dental sessions; for methods of calculation see Appendix II.

(*x*) *Patients' sanitary facilities*

34. Where the dental department and the out-patient department are integrated it may be possible to share the patients' sanitary facilities, but it will usually be found more convenient in the larger departments to provide separate facilities.

(*xi*) *Switchgear room*

35. A switchgear room to house the main isolator and distribution switch-fuse gear will normally be required. It should be located near the electrical load centre to reduce the cost of circuit wiring but it may be shared with the main out-patient department switch-room if such an arrangement meets this requirement. The recommended size is 8 ft. × 5 ft. (2·50m. × 1·50 m.) (minimum) to allow a clear passage in front of the switchgear; the dimensions will, however, depend on the quantity and type of equipment to be installed. The room should be kept dry and well ventilated and the door should be lockable and open outwards.

Additional accommodation

(*i*) *Office and reception*

36. Reception and appointments office facilities are required and, where possible, these should be combined with those for the out-patient department (see paragraph 5). If this is not convenient separate office and reception accommodation of 150/200 sq. ft. (14·0 m^2/ 18·5 m^2) will be needed.

(*ii*) *Waiting space for children*

37. Where there are a considerable number of child patients and the waiting area is separated from that of the out-patient department it is desirable to provide a special waiting space for children.

(*iii*) *Sanitary facilities*

38. Staff sanitary facilities should only be provided where the dental department is separated from the out-patient department; where the two departments are integrated these facilities should be shared.

39. Separate patients' sanitary facilities are included in the basic accommodation for the larger dental departments. Special sanitary facilities for patients in the smaller dental departments should be provided only where the department is separated from the out-patient department.

40. If a special waiting space is provided for children, sanitary facilities including a w.c. and wash-hand basin should be planned adjacent.

(*iv*) *Cleaners' room*

41. A cleaners' room may be required in addition to those provided for the out-patient department. It should be sited to serve the whole dental department. The room should be about 50 sq. ft. (4·5 m^2) in area. It will need a high-level sink and drainer, a low bucket sink, hot and cold water and storage cupboards and shelves for cleaning utensils, and space for mechanical cleaning equipment.

V. Engineering services.

Scope

42. This Building Note indicates the requirements additional to Hospital Building Note No. 12 to cover all engineering services associated with special areas of a dental department.

General

43. The installation of power-operated machines should comply with the requirements of the Factories Act, 1961, and H.M. Factory Inspectorate must be consulted about the arrangements and guarding of machines to ensure the safety of staff. (See also paragraph 13.)

Dental and orthodontic units

44. Normally the units are stationary and securely fixed to the floor of the surgery, but the tendency towards the use of mobile units is increasing. It is important, therefore, that designers should ascertain at a very early stage (i) the type of unit to be used, (ii) whether fixed or mobile, (iii) probable position in the surgery (thus locating the point of termination for the services).

45. A floor duct should be provided to house the engineering services to the units. The permanent services should terminate below floor level with suitable flexible connections continuing to the units. Adequate access for maintenance and safe minimum distances between services should be allowed.

Mechanical services

Heating

46. The general heating requirements for the dental suite will be similar to those for the out-patient department as the dental department will not be in use at night and during week-ends, except in those hospitals designated as accident centres where the dental suite may be needed at night and during week-ends for the treatment of accident cases.

47. The following heating design temperatures and natural ventilation rates, based on an outside temperature of 30°F (minus 1°C) are recommended.

Accommodation	*Temperature*	*Air changes per hour*
Consultant's room, surgeries, recovery room, darkroom, laboratories	65°F (18°C)	3
Consultant's surgery ..	65/70°F (18/21°C) See paragraph 51	6
Orthodontic model and record store	60°F (16°C)	2
Offices, waiting spaces, corridors, sanitary facilities ..	65°F (18°C)	2

48. The heating installations for the dental department will normally be supplied from the main hospital central heating system and form part of the out-patient department system. Summer heating will be required in the consultants' surgeries and other surgeries and the recovery room. (It may be economical to supply this summer heating load by means of thermostatically controlled fan-assisted electric convectors).

Ventilation

49. Internal rooms should be mechanically ventilated to suit their individual requirements. Internal lavatories should have a separate mechanical extract system. Air inlet grilles are required where the mechanical ventilation is by means of extract only.

50. Simple mechanical extract ventilation should be provided at high level in the laboratory area and plaster bays. Care must be taken to ensure an adequate supply of air to replace that extracted by all extract fans. This can often be achieved by the provision of transfer grilles in doors or walls which isolate the ventilated space from corridors and other areas. These grilles should be designed and disposed so that the speed of the air lies between 20 and 40 ft. per minute (100 and 200 mm. per second) in any area which may be occupied by staff, if the grille is at any height up to 6 ft. (2·00 m.) above floor level. Hoods with their own extract fans should be provided over the area housing the grinding and buffing machines, over the gas ovens and welding plant and over the apparatus required for casting noble metals and chrome cobalt appliances. The laboratory fume cupboard should be provided with its own extract fan. Each grinding and sand blasting machine should be fitted with its own hood and dust extract fan and, if the extracted air is to be re-circulated into the room, a filter should be fitted. The filter should be capable of removing 95 per cent of the particles down to 5 micron size when tested in accordance with B.S. 2831, using Test Dust No. 2. Suitable cowl protection should be provided for all extract fans and the outlets should be sited to minimise back-pressure from the wind and to prevent the entry of light into darkrooms.

51. Air conditioning is not necessary in the consultants' surgeries since general anaesthetics will not normally be administered. These surgeries should be mechanically ventilated, care being taken in the siting of the inlet and outlet grilles so as to avoid draughts.

Hot and cold water, drinking water services and drainage

52. Hot and cold water services will be required for the lavatory basin and sink in each surgery and recovery room. Elbow, wrist or foot action taps having a mixed temperature outlet will generally be required, except in lavatories where normal pillar taps should be provided. For supplies to lavatory basins *en suite* with w.c.'s, a spray mixing tap may be fitted. A separate gas or electric water heater, capable of supplying boiling water, should be fixed over the sink in the plaster bay and this sink should have a wax trap. Drinking water points served directly from the hospital's services main or from protected storage tanks should be provided near lavatory basins and in the laboratory. A drinking water supply having a capacity and pressure as specified by the makers will be required for the units in the surgeries. The water pressure should be ascertained, as a reducing valve or a constant pressure control device may be necessary. Drainage will be required for the units in the surgeries, a 2 in./2½ in. (50/60 mm.) diameter

pipe is usually adequate. A large shallow porcelain or stainless steel sink with two cold taps and one hot tap over should be provided in the darkroom.

Sterilizing equipment

53. Where immediate local sterilization of instruments is required this should be provided by a small, portable, electrically-heated pressure steam sterilizer (7 in. (180 mm.) diameter × 12 in. (300 mm.) long to draft B.S. 3970, part 4) adjacent to each dental/orthodontic chair (see paragraph 22). This equipment should be regularly inspected and tested (see Hospital Technical Memorandum No. 13, Planned Preventive Maintenance). In an area where the mains water is hard or acid the use of distilled or de-mineralised water in the chamber or steam generator should be considered to ensure efficient usage.

Town gas

54. A supply from an adequate size of main will be required for burner points in the consultant's room, laboratories and surgeries and these points should preferably be of the twin type. A supply will also be required to the dental and orthodontic units. Points in the laboratory should normally be as follows: (i) one for each technician or approximately every 5 ft. (1·50 m.) of the work bench, (ii) one for the plaster room or bay (iii) one or two points and/or a separate supply for a small gas furnace in the laboratory area. If a convenient supply of town gas is not available bottled gas cylinders may be used but in this event care must be taken to ensure that the correct type of burner is used. Special precautions are required for the storage of bottles of flammable gas.

Piped medical gases, and vacuum

55. One oxygen and one medical vacuum point should be provided in each surgery. An oxygen point and a medical vacuum point should be provided at each recovery trolley position in the recovery room. A piped nitrous oxide supply is not normally required in the department as general anaesthetics will not normally be given. When it is inconvenient to supply the dental department with oxygen from the central installation in the hospital this gas may be supplied by the use of a manifold installation serving the dental department only. A manual manifold will be adequate for departments where the sessions do not exceed eighteen per week. Where the sessions exceed this number each manifold should be provided with automatic change over from the "duty" to the "reserve" bank of cylinders. Visual and audible warning of the state of supply should be given and in the case of automatic manifolds this warning should be repeated in the Secretary's office in accordance with current instructions on the subject. When a separate manifold room is to be provided for the dental department it is permissible to store the reserve supply of oxygen cylinders in the manifold room provided they are held in racks conforming to B.S. 1319—1955. In departments dealing with up to nine sessions per week it may be more economical to obtain the supply of medical gases from bottles on trolleys. Current instructions on the design of manifold rooms and fire precautions in relation to the storage of medical gases should be followed. No compressor or vacuum pump should be housed in a manifold room. Portable suction apparatus should be used where it is not convenient to connect the department to the medical vacuum installation.

Compressed air

56. Two points for compressed air should be provided in each surgery; one to supply the dental unit, the other wall-mounted for the use of portable tools. The pressure required in the surgery is usually 40/60 p.s.i.g. (2·8/4 Bar) and since normal line pressure is 80/100 p.s.i.g. (5·5/7 Bar) it will be necessary to fit a suitable reducing valve if this is not incorporated in the apparatus. A safety valve must be fitted in a safe position on the low pressure distribution pipeline. One or two points at approximately 80 p.s.i.g. (5·5 Bar) may be required in the laboratory, one in the plaster room/bay and the other in, or adjacent to, the workshop area. Gauges must be provided to indicate reduced pressures at convenient points in the department.

57. The piped medical compressed air system should be used where convenient; otherwise a small compressor set or portable cylinders of sufficient capacity, with suitable controls, to serve the department will be necessary. The compressor set should preferably be located away from the building to prevent a noise nuisance. (See Hospital Design Note No. 4—Noise Control). The air intake should be sited in a dry position outside the building (at least 10 ft. (3·00 m.) above ground level) and fitted with a silencer and filter. All pipes should be laid with suitable falls and with adequate water drainage points. The provision of a standby compressor is not normally necessary.

Electrical services

Artificial lighting

58. The following values of illumination are recommended:

Accommodation	*Average illumination at working level*	
	Lumens sq. ft.	*(Lux.)*
Consultant's room, surgeries laboratories (background lighting)	30	(300)
Recovery room	20	(200)
Offices	15	(150)
Darkroom (white lighting) ..	5	(60)
Orthodontic model and record store, sanitary facilities ..	7*	(80)*
Waiting spaces, corridors ..	7*†	(80)*†

* This figure may be increased where adjacent intensities are high.

† The standard given is at floor level.

59. In the dental and orthodontic surgeries, consulting rooms and laboratory the lighting should have suitable colour rendering properties for clinical application. The operating light for the units may be either mobile, fixed to the ceiling or wall, or form an integral part of the dental unit. It is therefore advantageous to decide actual requirements at an early stage, e.g. design stage.

60. The general lighting in the laboratory area may be supplemented by local bench lighting, one fitting for each technician or approximately each 5 ft. (1·50 m.) of bench length; they should preferably be extra-low voltage (e.g. 25 V.) industrial pattern with an adjustable arm. The use of units with built-in transformers will eliminate serious voltage drop on low voltage circuits.

Mains voltage socket outlets

61. Fixed appliances should be permanently wired from fused spurs. Appliances whose rating is in excess of 13 amps. should be permanently connected and supplied from separate final sub-circuits and independently switched. Watertight plugs and sockets located in the services termination box below floor level should be provided between the permanent wiring and the flexible wiring connected to the mobile dental and orthodontic units to prevent water leakage.

62. The following socket outlets will be required:

Consultant's room	One twin outlet. One single outlet for x-ray viewing screen.
Consultant's surgery and other surgeries	To suit number of portable appliances, including x-ray viewing screen.
Recovery room	Two twin outlets.
Secretary's office	Two twin outlets.
Laboratory	To suit number of portable appliances. One twin outlet for each technician or for approximately each 5 ft. (1·50 m.) run of bench.
Office and reception	One twin outlet.
Darkroom	Two twin outlets plus one single outlet for x-ray viewing screen. (May be varied according to room size.)
Orthodontic model and record store	One outlet for general purposes.
Waiting services, corridors, etc.	General purpose outlets for the convenient use of domestic appliances having a flexible lead assumed to be 30 ft. (9·00 m.) long.

Provision for the use of mobile x-ray apparatus

63. Facilities for the use of mobile x-ray apparatus will be required in the surgeries. Normally dental x-ray apparatus can be used from any standard 13 amp. socket outlet with any standard 13 amp. plug.

Telephones

64. Telephone facilities for internal and external calls should be extensions from the hospital telephone system to the dental department. Extension instruments should be provided in the consultant's room, laboratory, office and reception and the secretary's office.

Intercommunication system

65. The installation of a small intercommunication system may be advantageous to link up the surgeries, reception and the laboratory. The system chosen should permit two-way conversation by staff only. Care should be taken to prevent a noise nuisance (see Hospital Design Note No. 4—Noise Control).

Electric clocks

66. A clock will be required in each consulting room, surgery, office and reception and the laboratory.

Staff location system

67. The hospital staff location system should be extended to the dental department. See Hospital Technical Memorandum No. 20.

Patient/nurse call system

68. Flush mounted push-buttons should be provided in the recovery room to operate an indicating light and/or buzzer at the office and reception, to enable patients to call a nurse or a nurse to call for assistance in an emergency. A bell-push or ceiling-mounted cord-operated pull switch will also be required in the patients' toilets in the dental department.

Anti-static precautions

69. Flammable anaesthetics are not normally used for dental surgery, but, if they are likely to be used, reference should be made to Hospital Technical Memorandum No. 2 for details of anti-static floors, etc. Generally anti-static floors should only be provided if anaesthetic apparatus having a closed, or partially-closed breathing circuit is likely to be used with flammable anaesthetics.

Fire alarms and fire-fighting equipment

70. Reference should be made to Hospital Technical Memorandum No. 16—Fire Precautions (revised 1969), and in particular Appendix 5—Fire Precautions in Laboratories. Advice on the proposed fire-fighting installation should be sought from the local fire authority. Fire precautions may influence the design of the engineering services, especially ventilation schemes and every consideration should therefore be given to these requirements in the early stages of design.

Emergency electrical services. (See Hospital Technical Memorandum No. 11—Emergency Electrical Services).

71. Emergency electrical supplies should be provided as for an out-patient department, e.g. (i) lighting: grade (*a*) in surgeries where operations are carried out and/or anaesthetics administered; grade (*b*) in consulting rooms; grade (*c*) in circulation areas: (ii) power (socket outlets) connected to at least two separate sub-circuits. The dental surgery does not justify the provision of a battery for emergency lighting purposes where a hospital has a standby supply.

APPENDIX I

TABLE OF ACCOMMODATION

Based on number of " dental sessions " (see Appendix II)

Type of accommodation	*Suggested size of room (sq. ft.)*	*Amount of accommodation*				
		Up to 9 sessions per week	10–18 *sessions per week*	19–27 *sessions per week*	28–36 *sessions per week*	37–45 *sessions per week*
A. *For a department serving as a consultant dental surgeon's main base*						
(i) Consultant's room ..	120 (11·0 m²)			1 room	1 room	1 room
(ii) Consultant's surgery ..	200 (18·5 m²)			1 room	1 room	1 room
(iii) Other surgeries	170 (16·0 m²)			2 rooms	3 rooms	4 rooms
(iv) Recovery room‡	200 (18·5 m²)			1 room	1 room	1 room
(v) Secretary's office	100 (9·5 m²)			1 room	1 room	1 room
(vi) Laboratory for three technicians:						
Workroom*	170 (16·0 m²)			1 room	1 room	1 room
Casting room	100 (9·5 m²)			1 room	1 room	1 room
Plaster bay	60 (5·5 m²)			1 room	1 room	1 room
Polishing bay	60 (5·5 m²)			1 room	1 room	1 room
Store	100 (9·5 m²)			1 room	1 room	1 room
(vii) Store room (clean supplies, linen)	100 (9·5 m²)			1 room	1 room	1 room
(viii) Darkroom	100 (9·5 m²)			1 room	1 room	1 room
(ix) Sub-waiting space† ..	150 min. (14·0 m²)			1 area	1 area	1 area
(x) Patients' sanitary facilities	—			1 area	1 area	1 area
(xi) Switchgear room	40 (4·0 m²)			1 room	1 room	1 room
(xii) Circulation space	—					
B. *For a department serving in addition as the orthodontic main base*						
(i) Consultant's room ..	120 (11·0 m²)	1 room	1 room	1 room		
(ii) Consultant's surgery ..	200 (18·5 m²)	1 room	1 room	1 room		
(iii) Other surgeries	170 (16·0 m²)	—	1 room	2 rooms		
(iv) Increase lab. accom. by the following:						
Workroom	Increase area in (vi) above by amount shown	60 (5·5 m²)	60 (5·5 m²)	60 (5·5 m²)		
Casting room		—	—	—		
Plaster bay		90 (8·5 m²)	90 (8·5 m²)	90 (8·5 m²)		
Polishing bay		40 (4·0 m²)	40 (4·0 m²)	40 (4·0 m²)		
Store		100 (9·5 m²)	100 (9·5 m²)	100 (9·5 m²)		
(v) Orthodontic model and record store	200 (18·5 m²)	1 room	1 room	1 room		
(vi) Circulation space	—					
C. *Subsidiary dental centres*						
(i) Dental surgery	170 (16·0 m²)	1 room	2 rooms			
(ii) Recovery room	100 (9·5 m²)	1 room	1 room			
(iii) Laboratory/darkroom ..	100 (9·5 m²)	1 room	1 room			
(iv) Store	50 (4·5 m²)	1 room	1 room			
(v) Sub-waiting space† ..	150 min. (14·0 m²)	1 room	1 room			
(vi) Switchgear room	40 (4·0 m²)	1 room	1 room			
(vii) Circulation space	—					

NOTES

(1) For calculation of " dental sessions " see Appendix IIA.

(2) †For calculation of sub-waiting spaces see Appendix IIB.

(3) ‡Recovery room. A larger area may be required where there are 37–45 sessions per week.

(4) *If more than three technicians are to be employed the workroom area will need to be correspondingly larger (60 sq. ft. (5·5 m²) per technician).

(5) It is assumed that the orthodontic main base will be planned only at hospitals which include the dental consultant's main base, hence it will be possible to share office and reception areas (if provided within the department), sub-waiting areas and sanitary facilities.

(6) Patients' lavatories in the out-patient department should be planned in groups at convenient points in the building on the following ratio to every 4–6 consulting examination rooms (i.e. dental surgeries):
1 w.c. and 1 lavatory basin for females
1 w.c. and 1 urinal stall and 1 lavatory basin for males.

APPENDIX II

A. Number of dental surgeries

1. The number of dental surgeries should be calculated on the same principle as " doctor sessions ", i.e. it is assumed that the rooms are in full use for nine sessions a week out of a possible eleven. This allows the maximum use to be obtained from the accommodation by spreading the sessions over the week.

2. The spreading of sessions over the week may be more difficult in the case of dental surgeons than doctors, as there will be fewer " dental sessions " to enable adjustments to be made, but the hospital should endeavour to achieve this.

3. The term " dental session " covers any session (half day) conducted by a consultant registrar, house officer, orthodontist, hygienist or dental auxiliary, etc., who performs a dental service to a patient: for example, a clinic conducted by a consultant, a registrar and an orthodontist would count as three " dental sessions ". The calculation of sessions does not include additional members of a team, for example, registrar or house officers when working under the direct supervision of a consultant and not seeing patients on their own.

4. The sessions which the consultant will spend in the operating theatres should not be included in the calculation of " dental sessions ".

B. Calculation for waiting spaces

1. The following are extracts from Hospital Building Note No. 12—Out-Patient Department.

Waiting space
This should be planned with the entrance and reception counters. (A tea bar should be provided adjoining this area. One or more public telephone boxes are required in a prominent position.) Lavatory accommodation for both male and female patients should be easily accessible.

Sub-waiting space
Subsidiary or sub-waiting spaces should normally be provided outside groups of consulting rooms.

Total area of waiting space
It is suggested that the total number of persons, i.e. patients and their companions, for whom waiting space will be required at one time will be about half of the total estimated attendance of patients for the maximum morning or afternoon session at the department. An area of 15 sq. ft. (1·5 m^2) per person is a reasonable allowance and this should be divided into the main and sub-waiting spaces according to planning considerations.

2. The following is an example for a dental department:

Assume there will be 10 patients per session (per (surgery).

Half this number is 5.

15 sq. ft. (1·5 m^2) × 5 people gives 75 sq. ft. (7·5 m^2) (per surgery).

The combined waiting area for all surgeries to be grouped together in one dental sub-waiting area.

3. In the case of dental departments (as opposed to other out-patient departments) it may be necessary to allocate all this calculated waiting area as a departmental area, and not to allocate a proportion of this area (possibly half) to the general out-patient department waiting area (as in 1 above). This will largely depend upon the extent to which the general out-patient department waiting area is used by the dental department. In any case a minimum area of 150 sq. ft. (14·0 m^2) is recommended as a suitable size for any waiting area.

4. If the total waiting area is to be allocated to the department it will not be necessary to include a tea bar, phone boxes, etc., within the dental department as these will be available in the out-patient department.

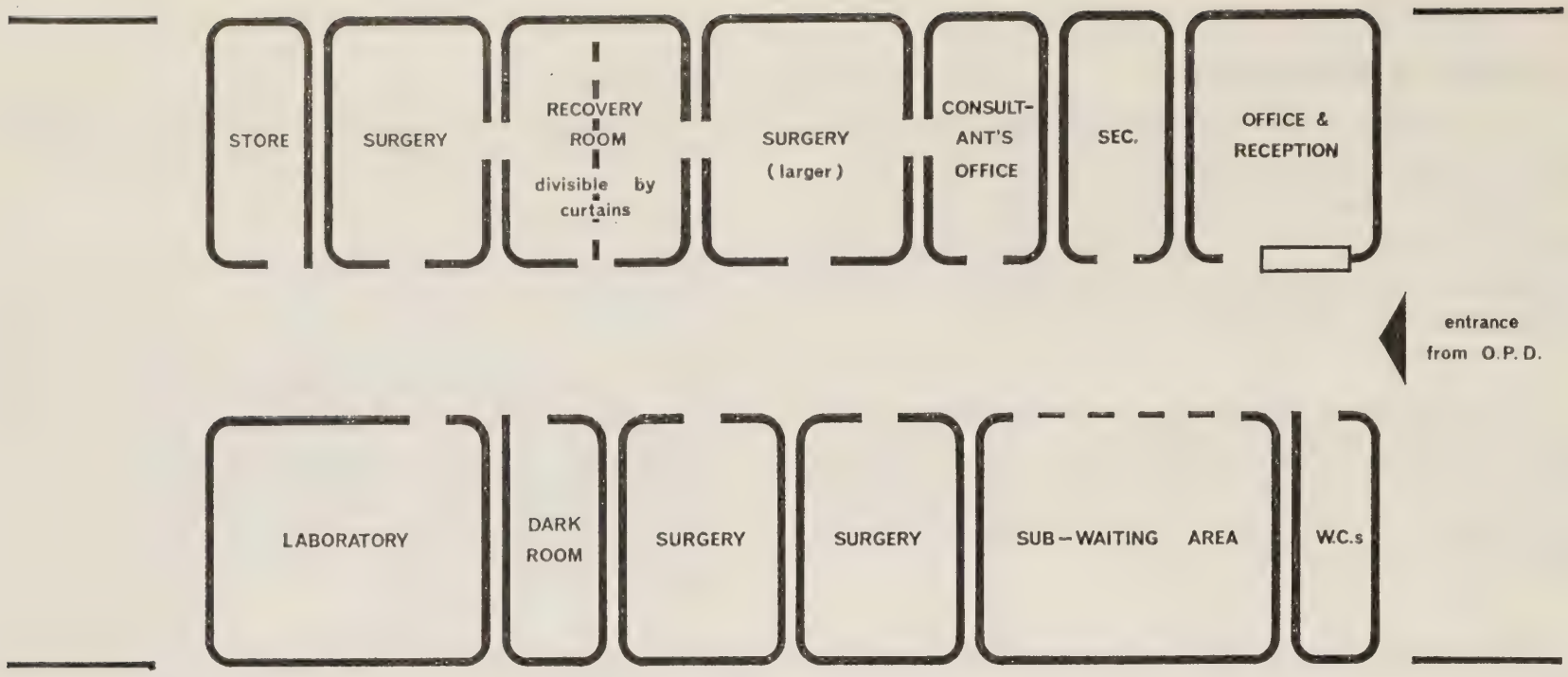

FIGURE 1. Consultant's main base. Single corridor plan. Four surgeries.

NOTE: Office and reception area shown in diagram may not be required as these facilities may be fully integrated with the office and reception area of the out-patient department.

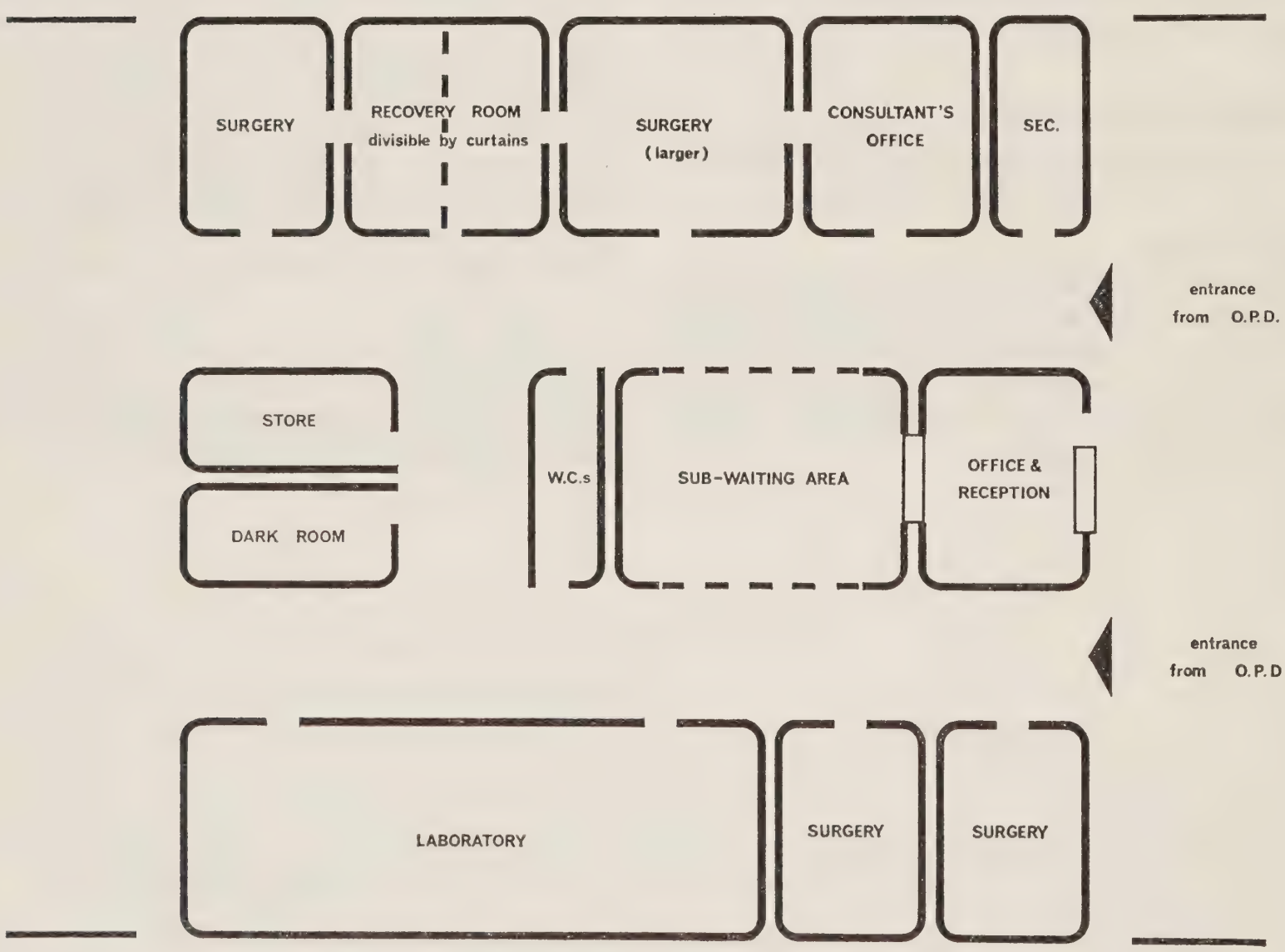

FIGURE 2. Consultant's main base. Double corridor plan. Four surgeries.

NOTE: Office and reception area shown in diagram may not be required as these facilities may be fully integrated with the office and reception area of the out-patient department.

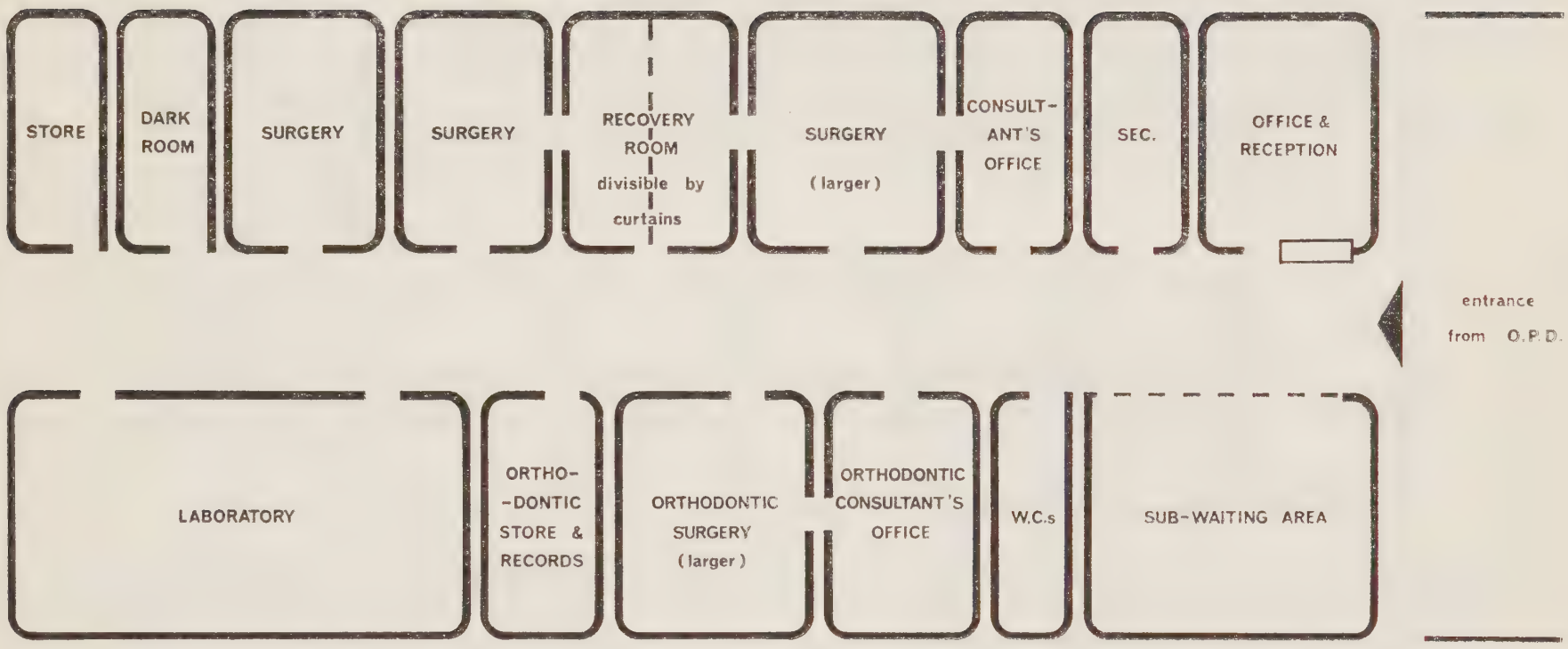

FIGURE 3. Consultant's main base with orthodontic clinic. Single corridor plan. Three dental surgeries, one orthodontic surgery.

NOTE: Office and reception area shown in diagram may not be required as these facilities may be fully integrated with the office and reception area of the out-patient department.

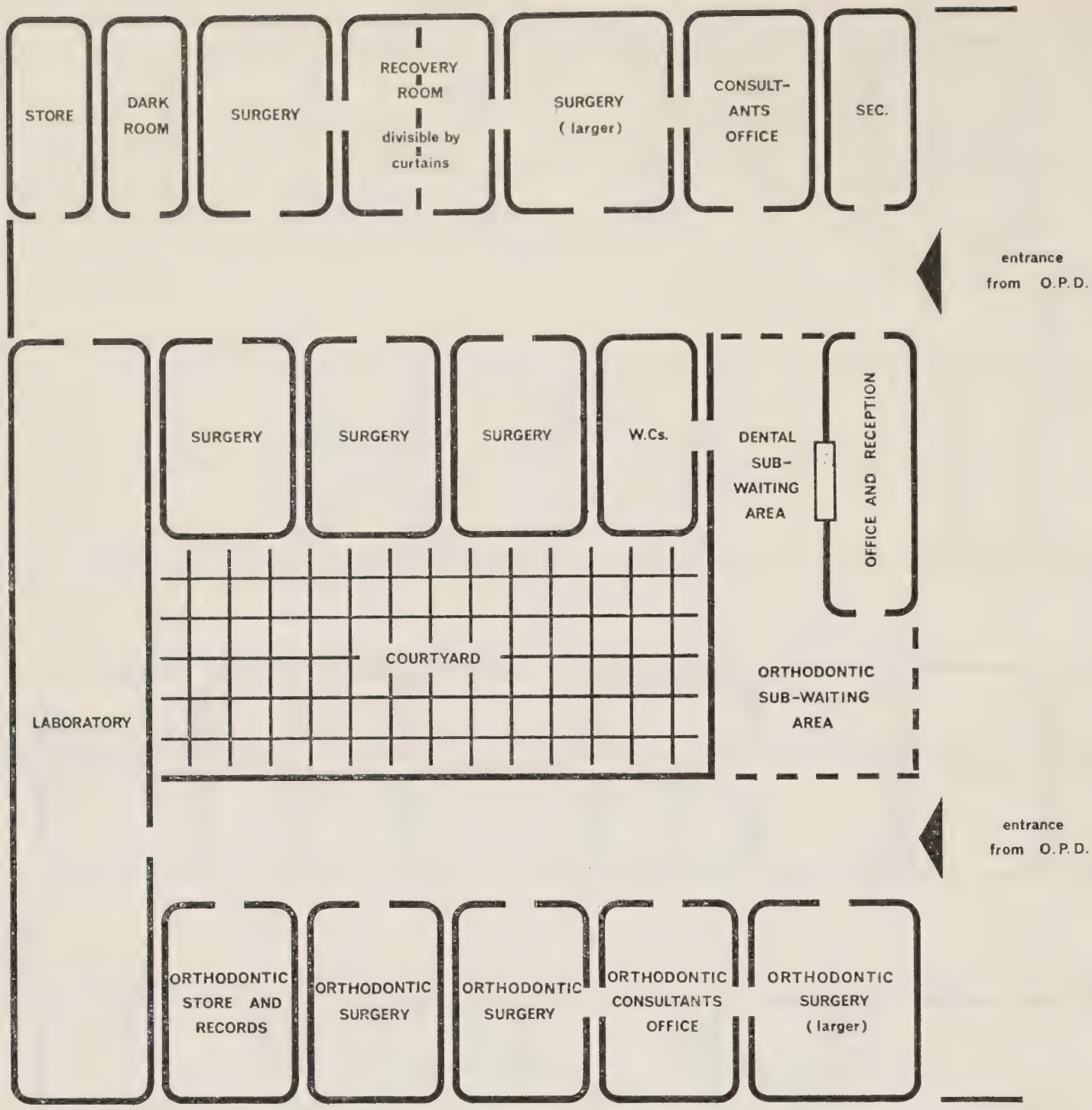

FIGURE 4. Consultant's main base with orthodontic clinic. Five dental surgeries, three orthodontic surgeries.

NOTE: Office and reception area shown in diagram may not be required as these facilities may be fully integrated with the office and reception area of the out-patient department.

NOTE:

Office and records area shown in diagram may not be required as these facilities may be fully integrated with the office and reception area of the out-patient department.

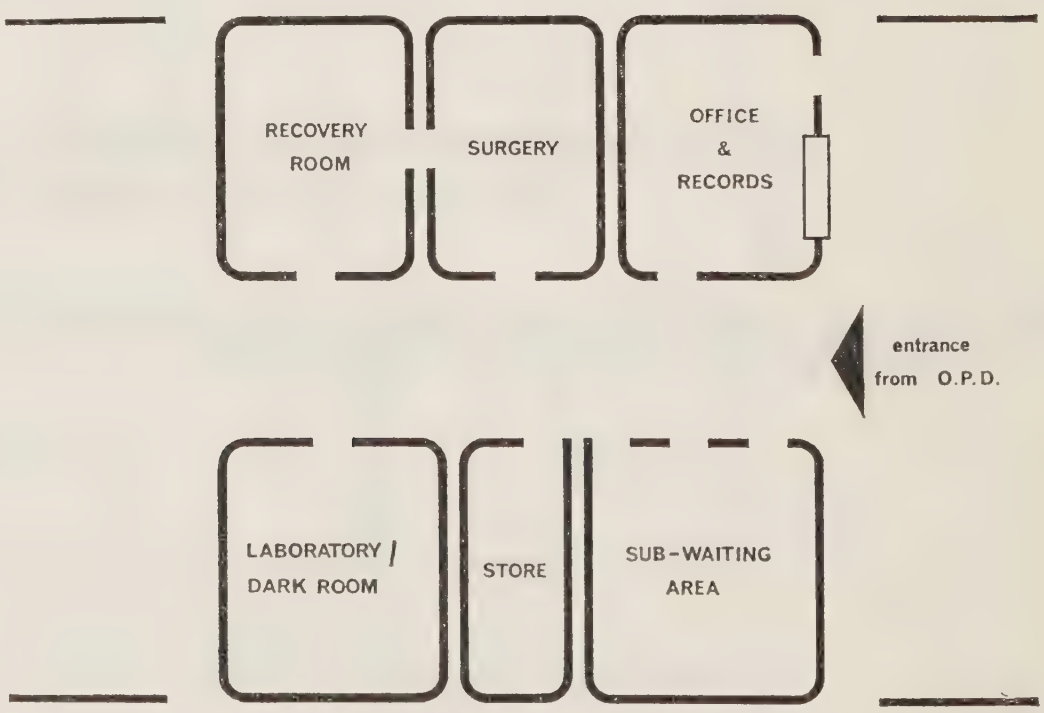

FIGURE 5. Subsidiary dental centre.

Hospital Building Note No. 2 Appendix E

Dental Department of the Out-Patient Department

Hospital Building Note No. 28

The scales of accommodation and related costings are applicable to dental departments providing facilities for up to forty-five sessions per week and in addition for up to twenty-seven orthodontic sessions per week.

A. For a department serving as a consultant dental surgeon's main base

Basic accommodation:

(i) Consultant's room
(ii) Consultant's surgery
(iii) Surgeries for assistant dental surgeon, senior registrar, registrar, house officer and/or general dental practioner and hygienist
(iv) Recovery room
(v) Secretary's office
(vi) Laboratory
(vii) Store rooms
(viii) Darkroom
(ix) Sub-waiting space
(x) Patients' sanitary facilities
(xi) Switchgear room

B. For a department serving in addition as the main base for the orthodontic consultant

Basic accommodation additional to A. above:

(i) Consultant's room
(ii) Consultant's surgery
(iii) Surgeries for assistant orthodontist, senior registrar or registrar
(iv) Additional laboratory space
(v) Orthodontic model and record store

C. For a department acting as a subsidiary dental centre

Basic accommodation:

(i) Dental surgery
(ii) Recovery room
(iii) Laboratory/darkroom
(iv) Store
(v) Sub-waiting space
(vi) Switchgear room

D. Additional accommodation (applicable to A. B. or C. above)

(i) Office and reception
(ii) Waiting space for children
(iii) Staff/patients' sanitary facilities
(iv) Cleaners' room
(v) Extra workroom space (as necessary)

E. Circulation space

For the purpose of preliminary planning the area occupied by the internal circulation space and internal walls and partitions represents, on average, an addition of 35 per cent to the net floor area of basic and additional accommodation.

DEPARTMENTAL COST ALLOWANCES

For cost control purposes the lump sum Cost Guide Figure for the various functional units shown in the Departmental Cost and Area Guide (Hospital Building Procedure Note No. 6) will be applicable.

The basic and additional accommodation costs used in determining these figures are as follows:

1. Basic accommodation

	£
Subsidiary dental department (1 surgery, 1–9 sessions per week)	8,400
Subsidiary dental department (2 surgeries, 10–18 sessions per week)	11,200
Dental department main base (3 surgeries, 19–27 sessions per week)	24,900
Dental department main base (4 surgeries, 28–36 sessions per week)	28,400
Dental department main base (5 surgeries, 37–45 sessions per week)	31,800
Orthodontic supplement (1 surgery, 1–9 sessions per week)	9,400
Orthodontic supplement (2 surgeries, 10–18 sessions per week)	12,800
Orthodontic supplement (3 surgeries, 19–27 sessions per week)	16,200

2. Additional accommodation

£8 10s. 0d. per sq. ft. (£91 10s. 0d. per sq. metre).

NOTES

(i) The costs in this Appendix are based, as far as possible, on the price level of "departmental cost allowances" as contained in other Hospital Building Notes.

(ii) The costing quoted above excludes plant space (other than switchgear room), which should be treated as "communications". For guidance purposes the recommended areas for plant rooms to the O.P.D. dental department are as follows:

Ventilating plant room..	80 sq. ft. (7·5 m²)
Manifold room	70 sq. ft. (6·5 m²)

(iii) The plant room areas quoted above would be suitable for departments of all sizes, but in multi-department development (or where the dental department is constructed with the main out-patient department) some reduction in area should be possible.

(iv) *Engineering*

The following engineering services are included in 1. and 2. above and account for:

up to 43 per cent of the total cost of basic accommodation in subsidiary dental centres;

up to 40 per cent of the total cost of basic accommodation in dental department main base;

up to 39 per cent of the total cost of basic accommodation in orthodontic supplements.

(*a*) *Mechanical services*

Heating—Low pressure hot water flush-fitting radiators generally. Supplementary heating by fan-assisted electric convectors in surgeries and recovery room.

Ventilation—Extract from lavatories, polishing bay, plaster bay and casting room. Plenum supply to and extract from consultants' surgeries.

Hot and cold water services—From central supply *not* including calorifier and storage tanks.

Piped medical gases and suction—From central supply *not* including plant.

Compressed air—Piped from plant room, *not* including compressor, etc.

Town gas—From central supply.

Fire protection—Supply from rising main to hose reel points. Extinguishers.

(*b*) *Electrical services*

Lighting (including fittings), socket outlets, all Group I and IIa equipment wiring, wiring for mechanical services, clocks, standby services wiring, switchgear, distribution and sub-mains within departments, patient/nurse alarm system, telephones and fire alarms.

(*c*) *Equipment* (*Group I and IIa*)

Water boiler, fume cupboard and cabinet, multi-drawer with worktop and spot welder.

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10	Kitchens	3s 6d (3s 10d)
11	Dining rooms	2s 0d (2s 4d)
12	Out-patient department	5s 0d (5s 6d)
14	Training school for nurses	3s 0d (3s 4d)
15	Pathology department	5s 0d (5s 6d)
16	Boiler house and steam boiler plant	1s 6d (1s 10d)
18	Administrative department	6s 6d (7s 0d)
19	Department of medical photography and medical illustration	2s 6d (2s 10d)
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23	Children's ward	3s 6d (4s 0d)
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25	Laundry	temporarily out of print
31	Psychiatric ward (type 1)	2s 6d (2s 10d)
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